

[CLAIMS]

[Claim 1] A drum type washing machine comprising:

an outer case;

a tub in the outer case having a drain hole at a lowest portion, and an overflow
5 hole at a predetermined position of an upper portion;

a drum rotatably mounted in the tub;

a driving motor for transmission of power for rotating the drum through a
rotation shaft connected to the drum;

a filter case mounted on a front of the outer case;

10 a drain pipe connected between the drain hole in the tub and the filter case for
draining water from an inside of the tub toward the filter case;

a drain valve mounted to control drainage of washed water, rinsed water,
extracted water, condensing water in drying from the tub through the drain pipe;

a drain filter between a drain inlet and a drain outlet in the filter case; and

15 a drain hose connected to the drain outlet in the filter case for draining water
from the filter case to an outside of the washing machine.

[Claim 2] The drum type washing machine as claimed in claim 1, wherein the
filter case is an injection molding of a material different, and separate from the outer
20 case.

[Claim 3] The drum type washing machine as claimed in claim 1, wherein the
filter case is mounted on the middle of a front thereof.

25 [Claim 4] The drum type washing machine as claimed in claim 1, wherein the
filter case is mounted on one of opposite sides of the front thereof.

[Claim 5] The drum type washing machine as claimed in claim 1, wherein the filter case is mounted rotatable around a lower end of the outer case in a front direction, and has one or more than one drain inlet, and drain outlet, respectively.

5 [Claim 6] The drum type washing machine as claimed in claim 1, wherein the drain filter is mounted such that a lowest point of the drain filter is positioned at a point higher than a residual water level in a drain path.

10 [Claim 7] The drum type washing machine as claimed in claim 1, wherein the filter case has a top end positioned at a height at least 70cm from a bottom of the washing machine.

15 [Claim 8] The drum type washing machine as claimed in claim 1, wherein the filter case is mounted such that the top end thereof is positioned on an inside of the door so that the filter case is not opened in a state the door is not opened.

[Claim 9] The drum type washing machine as claimed in claim 8, wherein the filter case has a pull on the inside of the door for handling the filter case.

20 [Claim 10] The drum type washing machine as claimed in claim 1, wherein the drain filter is a structure including a net of a predetermined mesh.

[Claim 11] The drum type washing machine as claimed in claim 10, wherein the drain filter includes a bail for taking out the filter.

[Claim 12] The drum type washing machine as claimed in claim 11, wherein the bail is hinged to a top end portion of the drain filter.

[Claim 13] The drum type washing machine as claimed in claim 1, further comprising filter case detecting means on the door, or the outer case, for detecting whether the filter case is mounted or not.

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[Claim 14] The drum type washing machine as claimed in claim 13, wherein the filter case detecting means is a microswitch for detecting whether the filter case is mounted or not as the microswitch is turned on/off depending on whether the filter case is positioned at a right position or not.

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[Claim 15] The drum type washing machine as claimed in claim 13, wherein the filter case detecting means is an optical sensor for detecting whether the filter case is positioned at a right position or not depending on whether a light reaches from a light emission part to a light reception part or not.

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[Claim 16] The drum type washing machine as claimed in claim 1, further comprising detecting means in the filter case for detecting whether the drain filter is mounted or not.

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[Claim 17] The drum type washing machine as claimed in claim 16, wherein the drain filter detecting means is a microswitch for detecting whether the drain filter is mounted or not as the microswitch is turned on/off depending on whether the bail of the drain filter is positioned at a right position or not.

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[Claim 18] The drum type washing machine as claimed in claim 16, wherein the drain filter detecting means is an optical sensor for detecting whether the filter is mounted or not depending on whether a light reaches from a light emission part to a

light reception part or not.

[Claim 19] The drum type washing machine as claimed in claim 13, further comprising a filter case lock switch assembly mounted on the outer case at a side of the
5 filter case, or in an inside space of the outer case for unlocking the filter case interlocked with the filter case detecting means.

[Claim 20] The drum type washing machine as claimed in claim 19, wherein
the filter case lock switch assembly includes a solenoid, and a plunger for moving back
10 and forth depending on application of power to the solenoid, to lock/unlock the filter case.

[Claim 21] The drum type washing machine as claimed in claim 1, further comprising an elastic member for automatic returning of the filter case.

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[Claim 22] The drum type washing machine as claimed in claim 21, wherein
the elastic member is a tension spring mounted between one side of the filter case and a
fixing portion on an inside of the outer case for providing a returning force in an
opening or closing direction with respect to the filter case.

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[Claim 23] The drum type washing machine as claimed in claim 21, wherein
the elastic member is a torsion spring mounted on a hinge portion at a lower end of the
filter case for providing a returning force in an opening or closing direction with respect
to the filter case.

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[Claim 24] The drum type washing machine as claimed in claim 1, wherein
each of the drain pipe connected to the drain inlet of the filter case, and the drain hose

connected to the drain outlet in the filter case includes bellows, for enabling extension and contraction following rotation of the filter case.

[Claim 25] The drum type washing machine as claimed in claim 1, wherein the
5 filter case has a residual water outlet in the vicinity of the lowest point thereof for
draining residual water, with a residual water drain plug provided thereto for selective
opening/closing.

[Claim 26] The drum type washing machine as claimed in claim 1, further
10 comprising locking means at one side of the filter case for maintaining a locked state of
the filter case.

[Claim 27] The drum type washing machine as claimed in claim 26, wherein
the locking means includes;

15 a hook at the filter case, and
a hook holding piece mounted separately at the outer case, or inside of the outer
case in correspondence to the hook.

[Claim 28] The drum type washing machine as claimed in claim 1, further
20 comprising:

a first overflow hose connected between a tub side overflow hole at a
predetermined position above the drain hole of the tub and the filter case; and
a second overflow hose connected to a filter case side overflow hole in an upper
portion of the filter case, having one end mounted so as to pass through a bottom, or a
25 rear wall of the outer case and position at a point lower than the filter case side overflow
hole.

[Claim 29] The drum type washing machine as claimed in claim 28, wherein the second overflow hose connected to a filter case side overflow hole in an upper portion of the filter case includes bellows for enabling extension and contraction following rotation of the filter case.

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[Claim 30] The drum type washing machine as claimed in claim 1, wherein the filter case is projected forward from the front surface of the outer case.

[Claim 31] The drum type washing machine as claimed in claim 1, further
10 comprising a drain pump in a flow passage of the drain hose for forced draining.